

**Sent Via Email**

March 10, 2021

Christian Klein, Chair  
Zoning Board of Appeals  
Town of Arlington  
Arlington, MA 02476

RE: Response to BETA NOAA 14 + Stormwater Analysis

Dear Chairman Klein:

BSC Group is in receipt of NOAA 14+ Stormwater Analysis conducted by BETA Group, Inc. (BETA) for Thorndike Place, dated March 4, 2021. The Applicant understands that the analysis was conducted by BETA at the request of the Zoning Board of Appeals (ZBA) and that it was not part of BETA's peer review services for which the Applicant is responsible to reimburse. BSC has reviewed the BETA analysis and offers the following responses and clarifications related to the information presented.

- BETA states that “the stormwater analysis submitted with the current application uses rainfall data from the National Resource Conservation Service (NRCS). Use of the NRCS data is consistent with the current requirements of the Massachusetts Stormwater Policy.” These statements are partially accurate. It is correct that the current Massachusetts Stormwater Standards require the use of the NRCS precipitation data. However, the stormwater analysis prepared by BSC and submitted with the current application did not use the NRCS data (also referenced as TP-40). Instead, the Applicant's stormwater analysis used the more conservative Cornell precipitation data as called for by the Arlington Wetlands Protection Regulations. The Cornell precipitation results in higher rainfall amounts when compared to TP-40 data.
- BETA also states, “The Massachusetts Stormwater Management Advisory Committee is considering revising the rainfall data requirement to utilize NOAA 14+ data.” While this statement is true, the use of the NOAA 14+ rainfall data has not been adopted into updated Massachusetts Stormwater Management Standards. In fact, The Massachusetts Department of Conservation and Recreation (DCR) and Massachusetts NAIOP (NAIOP) have submitted letters to the Massachusetts Department of Environmental Protection (MassDEP) asserting that the NOAA 14+ approach should be peer reviewed to fully vet the approach and demonstrate that it is supported by the climate change community for the purposes of using it for stormwater design. Both DCR and NAIOP have requested that MassDEP conduct an outside peer review to assess the impact of these changes on stormwater system sizing and other related impacts.
- In its recent submittal letter, BETA references Section 31 of Arlington's Wetland



Regulations that requires addressing the impact of climate change on surface runoff. BETA quotes Section 31, B.2 of the local regulation which states “[d]escribe project stormwater surface runoff, which may increase due to storm surges and extreme weather events, and how this will be managed / mitigated to prevent pollution (including nutrients from fertilizers, roadway runoff, etc.) from entering the resource area with consideration of eliminating impervious surfaces as feasible.” BETA further states that. “[u]sing NOAA 14+ rainfall data in the analysis could be considered as addressing this requirement.”

- BETA’s reference to Section 31 of the Arlington wetland regulation (“Climate Change Resilience”) is not a regulatory provision applicable to the Thorndike Place application. The referenced Section 31, was adopted in March 2018 and is part of the current Arlington Wetlands Protection Regulations. Section 31/Climate Change Resilience provision was not part of the Wetlands Regulations in effect at the time of this project application. However, we would refer the Board to BSC’s written response to the Arlington Land Trust – Weston & Sampson Resiliency Review, dated February 16, 2021, which outlines how the Thorndike Place project has considered climate change and incorporated resiliency into the project planning and design.
- BETA has conducted a stormwater analysis where they compared the predevelopment and post development peak flow rates and volumes using both the Cornell (not NRCS TP-40) and the NOAA 14+ rainfall data. The results of BETA’s analysis show that the overall post development peak flow rates from the site are reduced below existing predevelopment conditions when using both the Cornell data and the NOAA 14+ data.

In addition to the rainfall data comparison, BETA evaluated each quantity control BMP to assess any potential issues with the design using NOAA 14+ data. BETA’s analysis indicates that the proposed stormwater systems function adequately for storms up to the 100-year event. The peak water surface elevation within Infiltration Basin 1 and Detention Basin 3 remains below the top of the Stormtrap chambers. Their analysis confirms that the stormwater systems provide sufficient storage using either the Cornell precipitation data or the NOAA 14+ data.

- In using the NOAA 14+ data, BETA further states that their 100 year storm analysis indicates that the peak water surface elevation for both infiltration Basin 1 and Detention Basin 3 exceeds the top elevation of the Stormtrap chambers with the potential for surcharging of runoff above the rim elevation at CB-1 resulting in ponding in the driveway and surface parking area, potential surcharging above the rim elevation at Trench Drain-1 (underground garage entrance) resulting in additional storm runoff entering the garage, and potential higher peak flows and velocities at the outfall from Infiltration Basin 1 resulting in increased potential for scour and erosion at FES-1.

To provide context to the BETA analysis, the existing Massachusetts Stormwater Management Standards criteria is NRCS. In designing the stormwater system, BSC conservatively used the Cornell data, reflecting the current data required by local regulation. The NOAA 14+ is not a current standard either at the state level or local level and is not a regulatory requirement that applies to this project application. However, as demonstrated by BETA’s review, the stormwater management system, as designed, can accommodate the NOAA 14+ rainfall up to the 100-year storm. As it is not a regulatory requirement, the Applicant is not committing to use the NOAA 14+ rainfall data but



does agree to incorporate stormwater management system design revisions, to the maximum extent practicable, to address the surcharge and scour potential in the 100-year storm event as identified by BETA. The stormwater management system design revisions and updated Stormwater Report will be incorporated into the final site plans submitted for review for consistency with the Board's decision prior to submission for building permit.

## **Conclusion**

BSC agrees with BETA's conclusion that the proposed stormwater management system for the Thorndike Place development will mitigate post development peak flows below predevelopment runoff rates when analyzed using the NOAA 14+ rainfall data. BETA has also indicated the potential that both Infiltration Basin 1 and Detention Basin 3 may experience higher water surface elevations during the 100-year storm that may result in surcharging and scour at the outfall. These concerns can be addressed through stormwater management system design revisions which, as stated above, the Applicant agrees to incorporate, to the maximum extent practicable, into the final site plans submitted for review for consistency with the Board's decision prior to submission for building permit.

Should you have any questions on this information, please do not hesitate to reach out to me at (617) 896-4321 or [jhession@bscgrop.com](mailto:jhession@bscgrop.com).

Sincerely,

BSC Group, Inc.

John Hession, P.E.  
Vice President

cc:      [zba@town.arlington.ma.us](mailto:zba@town.arlington.ma.us)  
Jennifer Raitt, Director, Department of Planning and Community Development  
Marta Nover and William McGrath, BETA  
Paul Haverty, Blatman, Bobrowski & Haverty, LLC  
Stephanie Kiefer, Smolak & Vaughan  
Gwen Noyes and Arthur Klipfel, Arlington Land Realty